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Amended Patent Claims

1. Method of illuminating at least two illumination points (401) by a substantially uniform predefined amount of energy by means of at least one spatial light modulator (10), said at least one spatial light modulator (10) comprising a plurality of light modulators (LM), whereby

the predefined amounts of energy transmitted to said at least two illumination points (401) are at least partly controlled by varying the number of said light modulators (LM) illuminating said at least two points, and whereby at least one of said light modulators (LM) illuminating said at least two points is selected according to at least one predetermined selection parameter.

2. Method of illuminating at least two illumination points according to claim 1, whereby

said at least one illumination point (401) forms part of a light sensitive medium (12).

3. Method of illuminating at least two illumination points according to claim 1 or claim 2, whereby

the light modulators (LM) illuminating at least one of the at least two illumination points are light modulators of mutually different spatial light modulators.

4. Method of illuminating at least two illumination points according to any of the claims 1-3, whereby

the illumination is performed during a relative movement between the at least two illumination points (401) and the at least one spatial light modulator (10).

5. Method of illuminating at least two illumination points according to any of the claims 1-4, whereby

at least one of the at least two illumination points (401) is illuminated by a set of the light modulators (LM) of said at least one spatial light modulator (10).

6. Method of illuminating at least two illumination points according to any of the claims 1-5, whereby

the illumination of at least two of the illumination points is obtained by predetermined light modulators (LM).

7. Method of illuminating at least two illumination points according to claim 6, whereby

said predetermined light modulators (LM) form a mask pattern (LML).

8. Method of illuminating at least two illumination points according to any of the claims 1-7, whereby

said amount of energy is substantially the same in each illuminated point, when the illumination is completed.

9. Method of illuminating at least two illumination points according to any of the claims 1-8, whereby

moving a light modulating arrangement over a surface (12),

said light modulating arrangement establishing at least one light modulation layout (LML),

said at least one light modulation layout comprising at least one row (R0, R1,..) containing at least one light modulation point (LMP),

said light energy received at a specific spot (401) on said surface (12) being accumulated from the light energy received from each of said at least one light modulation points (LMP) of one of said at least one row (R0, R1,..) of one of said at least one light modulation layouts (LML),

said light energy received at said specific spot (401) on said surface (12) being at least partly controlled by varying the number of said at least one light modulation points (LMP) of said at least one row (R0, R1,..).

10. Method of illuminating at least two illumination points according to any of the claims 1-9, whereby

the number of light modulation points (LMP) is at least partly controlled by blocking some of the light modulators (LM).

11. Method of illuminating at least two illumination points according to any of the claims 1-10, whereby

at least one of the light modulators (LM) chosen to block is selected from defective light modulators (LM) of the at least one spatial light modulator (10).

12. Method of illuminating at least two illumination points according to any of the claims 1-11, whereby

at least one of the light modulators (LM) chosen to block is selected from light modulators (LM) corresponding to light modulation points (LMP) deviating from the desired light modulation point (LMP) characteristics.

13. Method of illuminating at least two illumination points according to any of the claims 1-12, whereby

the blocked light modulators (LM) form a time varying pattern.

14. Method of illuminating at least two illumination points according to any of the claims 1-13, whereby

the number of light modulators (LM) to block is determined on the basis of an energy measurement of the light modulation layout (LML).

15. Method of illuminating at least two illumination points according to any of the claims 1-14, whereby

the energy measurement is performed on the complete system comprising at least one light source (105), illumination optics (106, 107), at least one spatial light modulator (10) and imaging optics (107, 109).

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16. Method of illuminating at least two illumination points according to any of the claims 1-15, whereby

the number and distribution of light modulators (LM) allocated for illumination of at least one of the at least two illumination points (401) are determined on the basis of an energy measurement of all light modulation layouts (LML) established by the light modulating arrangement.

17. Method of illuminating at least two illumination points according to any of claims 1-16, whereby

the predefined amounts of energy transmitted to said at least two illumination points (401) are transmitted from two different spatial light modulators (10), respectively.

18. Method of illuminating at least two illumination points according to any of claims 1-17, whereby said light modulating arrangement comprises at least one light source.

19. Method of illuminating at least two illumination points according to any of claims 1-18, whereby said predefined amounts of energy transmitted to said at least two illumination points (401) are established on the basis of the distribution of light intensity in both columns and rows of said spatial light modulator.

20. Method of illuminating at least two illumination points according to any of claims 1-19, whereby the energy transmitted via said spatial light modulator is measured in sub-regions of said columns and rows.

21. Method of illuminating at least two illumination points according to any of claims 1-20, whereby said sub-regions comprises the individual light modulators.

22. Method of illuminating at least two illumination points according to any of claims 1-21, whereby said light modulators (LM) illuminating said at least two points are selected among the light modulators providing the highest intensity.

23. Method of illuminating at least two illumination points according to any of claims 1-22, whereby at least one filter mask (FM) is established at least partly on the basis of an energy measurement of the light modulation layout (LML).

24. Method of illuminating at least two illumination points according to any of claims 1-23, whereby said at least one filter mask (FM) is established at least partly on the basis of an energy measurement of at least two different light modulation layouts (LML).

25. Method of illuminating at least two illumination points according to any of claims 1-24, whereby said at least one filter mask (FM) identify at least one light modulator (LM) to be blocked.

26. Method of illuminating at least two illumination points according to any of claims 1-25, whereby said at least one light modulator (LM) identified by said at least one filter mask (FM) is selected among the light modulators providing the least intensity.

27. Method of illuminating at least two illumination points according to any of claims 1-26, whereby said at least one light modulator (LM) identified by said at least one filter mask (FM) is selected among the light modulators providing a light beam whose cross-section is distorted or stretched.

28. Method of illuminating at least two illumination points according to any of claims 1-27, whereby said at least one light modulator (LM) identified by said at least one filter mask (FM) is selected among the light modulators providing a light beam whose cross-section is regular.

29. Method of illuminating at least two illumination points according to any of claims 1-28, whereby at least one group of light modulators (LM) is identified by said at least one filter mask (FM), and said at least one group comprises at least two adjoining light modulators.

30. Method of illuminating at least two illumination points according to any of claims 1-29, whereby at least one full column (C0, C1,..) of one of said at least one light modulation layouts (LML) is identified by said filter mask (FM).

31. Method of illuminating at least two illumination points according to any of claims 1-30, whereby the result of said energy measurement of said light modulation layout (LML) is stored in a storage means.

32. Method of illuminating at least two illumination points according to any of claims 1-31, whereby a common energy level is determined at least partly on the basis of said energy measurement.

33. Method of illuminating at least two illumination points according to any of claims 1-32, whereby said common energy level is stored in a storage means.

34. Method of illuminating at least two illumination points according to any of claims 1-33, whereby said filter mask (FM) is changed over time.

35. Method of illuminating at least two illumination points according to any of claims 1-34, whereby said changing of said filter mask (FM) is at least partly determined by the speed of said relative movement between said at least two illumination points (401) and said at least one spatial light modulator (10).

36. Method of illuminating at least two illumination points according to any of claims 1-35, whereby said changing of said filter mask (FM) is at least partly determined by short-term intensity changes of said at least one light source.

37. Method of illuminating at least two illumination points according to any of claims 1-36, whereby said at least one filter mask (FM) is applied to said at least one spatial light modulator before each exposure session.

38. Method of illuminating at least two illumination points according to any of claims 1-37, whereby said at least one filter mask (FM) is applied to said at least one spatial light modulator on a real time basis.

39. Method of illuminating at least two illumination points according to any of claims 1-38, whereby said at least one filter mask (FM) is applied to the modulation raster image between each exposure session.

40. Method of illuminating at least two illumination points according to any of claims 1-39, whereby said at least one filter mask (FM) is applied to the modulation raster image during exposure.

41. Method of illuminating at least two illumination points according to any of claims 1-40, whereby said at least one filter mask (FM) is stored in a storage means.

42. Method of utilizing light modulating chips with one or more defective light modulators (LM), whereby

the method of illuminating at least two points according to any of the claims 1-41 is used.

43. Method of compensating non-linearity or non-accuracy of an illumination system comprising at least one spatial light modulator (10) and at least one thereto coupled

input and output optics (105, 106, 107, 109) by means of the method according to any of the claims 1-41.

44. Illumination arrangement comprising at least one spatial light modulator (10) and at least one thereto coupled input and output optical system (105, 106, 107, 109), said arrangement comprising means for performing a modulation of light according to any of the claims 1-43.

45. Illumination arrangement according to claim 44 wherein said input optical system comprises at least one light source.